

REMARKS

This amendment is responsive to the non-final Office Action mailed on November 9, 2005. Claims 24-31, 34-37, and 44-57 are pending, of which claims 24, 34, 44 and 48 have been amended. Claims 32 and 33 are withdrawn from consideration. In view of the foregoing amendments, as well as the following remarks, Applicant respectfully submits that this application is in complete condition for allowance and requests reconsideration of the application in this regard.

Claims 24-31, 34-37, and 44-57 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,602,356, *Nagaraj et al.* (hereinafter *Nagaraj*). Of the rejected claims, claims 24, 34, 44 and 48 are the only independent claims. The Examiner contends that *Nagaraj* shows or teaches all the elements of the rejected claims. Applicant respectfully traverses the Examiner's contention.

In contrast to Applicant's claims 24-31, *Nagaraj* fails to disclose or suggest "passively coupling a single port of a receptacle in fluid communication with a main reaction chamber" and "passively providing a first vapor phase reactant including a first extrinsic metal from the receptacle to the main reaction chamber." Instead, *Nagaraj* discloses actively coupling the internal generator (8) with the retort (2) and actively providing the hafnium chloride gas from the internal generator (8) to the retort (2). Specifically, *Nagaraj* discloses producing hafnium chloride gas by placing hafnium metal in an internal generator (8) and flowing aluminum trichloride gas from an external generator (4) through the internal generator (8). See *Nagaraj* at column 4, line 51 – column 5, line 14. The aluminum trichloride gas, which is corrosive, converts the hafnium metal to hafnium chloride gas, which is directed from the internal generator (8) to the retort (2) along with the flow of the aluminum trichloride gas. Consequently, the internal generator (8) in *Nagaraj* is actively coupled with the retort because a flow of corrosive

carrier gas, namely aluminum trichloride gas, is required to provide the hafnium chloride gas to the retort (2). Furthermore, the hafnium chloride gas in *Nagaraj* is actively provided to the retort (2) because of the requirement for the corrosive aluminum trichloride carrier gas flow.

In order for a reference to anticipate the invention in a claim, the reference must teach each and every element in the precise arrangement set forth in the claim. If the reference fails to teach even one of the claimed elements, the reference does not and cannot anticipate the claimed invention. *Nagaraj* fails to disclose a method of forming an aluminide coating in which a single port of a receptacle is passively coupled in fluid communication with a main reaction chamber and a first vapor phase reactant is passively provided from the receptacle to the main reaction chamber. For at least this reason, *Nagaraj* fails to anticipate independent claim 24, and claims 25-31 depending therefrom. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Nagaraj also fails to provide any suggestion or motivation to modify the disclosed deposition method to correct its deficiencies in comparison with Applicant's independent claim 24. The deposition method disclosed in *Nagaraj* requires that the hafnium chloride gas be actively provided to the retort (2). Specifically, the internal generator (8) in *Nagaraj* requires an inflow of corrosive aluminum trichloride gas to react with hafnium metal held inside the internal generator (8) and actively produce an outflow consisting of hafnium chloride and aluminum trichloride gases. Any attempt to modify the internal generator (8) in *Nagaraj* to eliminate the inflow of aluminum trichloride gas would render the internal generator (8) unsatisfactory for its intended purpose because there would be no corrosive gas flow to form the hafnium chloride gas and transport the hafnium chloride gas to the retort (2). Moreover, such a modification would change the principle of operation of the internal generator (8). The operation of the internal generator (8) in *Nagaraj* requires a corrosive gas flow to actively generate the hafnium chloride

gas. There is no suggestion found in *Nagaraj* that the hafnium chloride gas could be passively transported to the retort (2) in the absence of the corrosive carrier gas or that there would be a reasonable expectation of success. Consequently, for at least these reasons, there is no suggestion or motivation found in *Nagaraj* to make a modification that would correct its deficiencies in comparison with Applicant's claim 24.

Applicant's independent claim 34, and claims 35-37 depending therefrom, are patentable for at least the same or similar reasons as independent claim 24. Specifically, *Nagaraj* fails to disclose or suggest that the second source of the second extrinsic metal is provided to the main reaction chamber "without a carrier gas." As discussed in the above remarks, *Nagaraj* discloses that hafnium chloride gas is produced by placing hafnium metal in an internal generator (8) and flowing aluminum trichloride gas from an external generator (4) through the internal generator (8). See *Nagaraj* at column 4, line 51 – column 5, line 14. The aluminum trichloride gas in *Nagaraj* operates as a corrosive carrier gas for actively providing the hafnium chloride gas to the retort (2). Accordingly, *Nagaraj* fails to anticipate independent claim 34 for at least this reason. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Applicant's independent claim 44, and claims 45-47 depending therefrom, are patentable for at least the same or similar reasons as independent claim 24. Specifically, *Nagaraj* fails to disclose or suggest "passively providing a second vapor phase reactant from a receptacle external to the main reaction chamber to the deposition environment inside the main reaction chamber via a closed first communication path with the main reaction chamber." As discussed in the preceding remarks, *Nagaraj* discloses that hafnium chloride gas is produced by placing hafnium metal in an internal generator (8) and flowing aluminum trichloride gas from an external generator (4) through the internal generator (8). See *Nagaraj* at column 4, line 51 – column 5, line 14. The aluminum trichloride gas in *Nagaraj* operates as a corrosive carrier gas for actively

providing the hafnium chloride gas to the retort (2). Accordingly, *Nagaraj* fails to anticipate independent claim 44 for at least this reason. Therefore, Applicant respectfully requests that this rejection be withdrawn.

With regard to Applicant's independent claim 48, *Nagaraj* fails to disclose or suggest that the second source of the second extrinsic metal is provided to the main reaction chamber "without a carrier gas." As discussed in the above remarks concerning claim 24, *Nagaraj* discloses that hafnium chloride gas is produced by placing hafnium metal in an internal generator (8) and flowing aluminum trichloride gas from an external generator (4) through the internal generator (8). See *Nagaraj* at column 4, line 51 – column 5, line 14. The aluminum trichloride gas in *Nagaraj* operates as a corrosive carrier gas for actively providing the hafnium chloride to the retort (2). Accordingly, *Nagaraj* fails to anticipate independent claim 48 for at least this reason. Therefore, Applicant respectfully requests that this rejection be withdrawn.

In further contrast to Applicant's independent claim 48, *Nagaraj* fails to disclose or suggest that the first vapor phase reactant is generated from "a metal-halogen Lewis acid." As discussed in the above remarks concerning claim 48, *Nagaraj* discloses that the hafnium chloride gas is produced by directing aluminum trichloride gas across hafnium metal. *Nagaraj* fails to disclose that a metal-halogen Lewis acid could operate as the source of hafnium for the hafnium chloride gas. *Nagaraj* also fails to provide any suggestion or motivation to modify the disclosed deposition method to replace the metal with a metal-halogen Lewis acid. Accordingly, independent claim 48 is patentable over the disclosure in *Nagaraj* for at least these additional reasons. Therefore, Applicant respectfully requests that this rejection be withdrawn.

Because claims 49-57 depend from independent claim 48, Applicant submits that these claims are also patentable for at least the same reasons as claim 48. Furthermore, each of these claims recites a unique combination of elements not disclosed or suggested by *Nagaraj*.

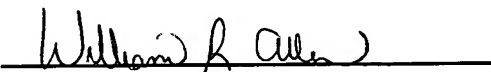
For example, *Nagaraj* fails to disclose or suggest that the first vapor phase reactant is formed by transforming an amount of a solid metal-halogen Lewis acid material placed in the internal generator (8), as set forth in Applicant's dependent claim 55. Instead, *Nagaraj* discloses transforming a metal, such as hafnium metal, by exposure to a corrosive carrier gas to form a vapor phase reactant.

Conclusion

Applicant has made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments and remarks, this application is submitted to be in complete condition for allowance and, accordingly, a timely notice of allowance to this effect is earnestly solicited. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicant does not believe fees are dues in connection with filing this communication. If, however, any additional fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,
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